IN THE CLAIMS

Claims 1-137 are presented below:

Claims 1-111 (canceled).

112. (Currently Amended) A method of forming a barrier metal film formed of a nitride film including tungsten by thermal CVD, comprising:

positioning a substrate in a processing vessel;

~~maintaining a pressure in~~ evacuating the processing vessel;

forming a film containing tungsten on one side of the substrate by supplying a process gas including WF_6 gas and SiH_4 gas into the processing vessel;

shutting off the supplying of the process gas into the processing vessel;

completely removing the process gas from the processing vessel by supplying a purging gas into the processing vessel, while evacuating the processing vessel; and

nitriding the film containing tungsten by supplying NH_3 gas.

113. (Previously Presented) The method according to Claim 112, wherein the nitriding of the film is performed by generating plasmas.

114. (Currently Amended) The method according to Claim 112, wherein the ~~forming of the film and~~ nitriding of the film ~~are~~ is performed in ~~the same processing apparatus or different~~ another processing ~~apparatus~~ vessel.

115. (Previously Presented) The method according to Claim 112 wherein said nitriding comprises supplying at least one of MMH and N_2.

116. (Previously Presented) The method according to Claim 112, wherein the film containing tungsten is formed at a temperature of about 300 to 450°C and on a pressure of about 0.5 to 80 Torr.

117. (Previously Presented) The method according to Claim 112, wherein the film containing tungsten is made of W or WSix.

118. (Currently Amended) The method according to Claim ~~112~~ 113, wherein the nitriding of the film is performed by ~~using MMH gas~~ generating plasma under the following process conditions:

~~an amount of MMH gas: about 1-20 sccm,~~

temperature: about 300-450°C, and

pressure: about 0.1-5 Torr.

119. (Canceled).

120. (Currently Amended) The method according to Claim 112, wherein the film containing tungsten nitrided is made of WNx or WSixNy.

121. (Currently Amended) A method of forming a barrier metal film formed of a nitride film including tungsten by thermal CVD, comprising:

positioning a substrate in a processing vessel;

~~maintaining a pressure in~~ evacuating the processing vessel;

forming a film containing tungsten on one side of the substrate by supplying a process gas including a gas containing tungsten and a gas containing hydrogen into the processing vessel;

shutting off the supplying of the process gas ~~containing tungsten and gas containing hydrogen~~ into the processing vessel;

completely removing the gas ~~containing tungsten~~ from the processing vessel by supplying an inert gas as a purging gas into the processing vessel, while evacuating the processing vessel; and

nitriding the film containing tungsten by supplying NH_3 gas.

122. (Previously Presented) The method according to Claim 121, wherein the nitriding of the film is performed by generating plasma.

123. (Previously Presented) The method according to Claim 121, wherein said nitriding comprises supplying at least one of MMH, and N_2.

124. (Currently Amended) The method according to Claim 121, wherein the gas containing ~~H_2~~ hydrogen includes at least one of H_2 gas, SiH_4 gas, Si_2H_6 gas, and SiH_2Cl_2 gas.

125. (Canceled).

126. (Currently Amended) A method of forming a barrier metal film formed of a nitride film including tungsten by thermal CVD comprising:

positioning a substrate in a processing vessel;

~~maintaining a pressure in~~ evacuating the processing vessel;

forming a film containing tungsten on one side of the substrate by supplying a process gas including WF_6 gas and SiH_4, gas or H_2 gas into the processing vessel;

shutting off the supplying of the ~~WF_6 gas and SiH_4 gas or H_2~~ process gas into the processing vessel;

completely removing the ~~WF_6~~ process gas from the processing vessel by supplying an inert gas as a purging gas into the processing vessel, while evacuating the processing vessel; and

nitriding the film containing tungsten by supplying a gas containing ~~at least one of~~ NH_3 gas ~~and N_2~~ and forming a plasma of the gas containing ~~at least one of~~ NH_3 gas ~~and N_2~~.

127. (Currently Amended) The method according to claim 126, wherein said nitriding comprises supplying MMH gas and N_2 gas.

128. (Previously Presented) The method according to Claim 126, wherein the film containing tungsten is formed at a temperature of about 300 to 450°C.

129. (Canceled).

130. (Canceled).

131. (New) A method of forming a barrier metal film formed of a nitride film including metal by thermal CVD, comprising:

positioning a substrate in a processing vessel;

evacuating the processing vessel;

forming a film containing metal on one side of the substrate by supplying a process gas including a gas containing metal and a gas containing hydrogen into the processing vessel;

shutting off the supplying of the process gas into the processing vessel;

completely removing the process gas from the processing vesel by supplying an inert gas as a purging gas into the processing vessel, while evacuating the processing vessel; and

nitriding the film containing metal by supplying NH_3 gas.

132. (New) The method according to Claim 131, wherein the nitriding of the film is performed by generating plasmas.

133. (New) The method according to Claim 131, wherein the nitriding of the film is performed in another processing vessel.

134. (New) The method according to Claim 131, wherein said nitriding comprises supplying at least one of MMH and N_2.

135. (New) The method according to Claim 131, wherein the film containing metal is formed of a metal film or metal-silicide film.

136. (New) The method according to Claim 126, wherein the film containing tungsten is made of W or WSix.

137. (New) The method according to Claim 126, wherein the nitride film containing tungsten is made of WX_x or WSixNy.